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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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DYKEMA GOSSETT PLLC
FRANKLIN SQUARE, THIRD FLOOR WEST
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER

MULLINS, BURTON S

ART UNIT PAPER NUMBER

2834

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

08/952,996

Applicant(s)

LEIJON ET AL.

Examin r

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P r i d f r R p l y

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9,11,13-29 and 31-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9,11,13-29,31-38 and 41-44 is/are rejected.
- 7) ☒ Claim(s) 39 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Pri rity under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities: On line 2, remove the hyphen between "one" and "voltage". Appropriate correction is required.
2. Claim 35 is objected to because of the following informalities: On line 2, before "insulating layer", change "and" to --an--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1-9, 11 and 13-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, the syntax of the phrase "a solid insulation system including at least one of an inner semiconducting layer and outer semiconducting layer, each layer forming an equipotential surface, and a solid insulation" renders the meaning indefinite. It is not clear if this means that both the inner and outer semiconducting layers are included in as one alternative element, or if the alternative elements are (1) the inner semi-conducting layer, (2) the outer semiconducting layer, or (3) a solid insulation, exclusively. For purposes of examination, it will be presumed that the former interpretation holds.

Claim 5 is indefinite because the recited inner semiconducting layer is not required by the language of claim 1 or 4, i.e., the phrase "a solid insulation system including at least one of an inner semiconducting layer and outer semiconducting layer, each layer forming an

equipotential surface, and a solid insulation" in claim 1 requires at least one, but not both, of (1) an inner semiconducting layer and outer semiconducting layer...and (2) a solid insulation.

Claims 6-7 are indefinite because the recited outer semiconducting layer is not required by the language of claim 1 or 4. See the preceding paragraph.

Claim 11 is indefinite because the recited inner and outer semiconducting layers are not required by the language of claim 1.

In claim 13, the parenthetical statement renders the claim indefinite since it is not clear if the step-up and unit transformer are the same element or different elements.

In claim 17, "one of said voltage levels" lacks antecedent basis. The claim has been treated as depending from claim 16.

In claim 21, "the cables" lacks antecedent basis since "windings" is used in claim 1.

Regarding claims 22-23, claim 22 does not depend from a claim (claim 22 has been treated as depending from claim 1). Further, claim 23 is a duplicate of claim 22.

4. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitation "an insulation system in electrical contact with the uninsulated stands [sic]" is vague because it is not clear how an insulator is in *electrical* contact with a conductor.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-4, 18-21 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuler (US 4,308,476) in view of applicant's admitted prior art. Schuler teaches a large electrical machine for a plant which inherently generates active and reactive electric power for a high-voltage distribution or transmission network and includes a shaft (inherent) and a bar winding comprising a conductor having at least one of a plurality of insulated conductive elements 1 surrounded by insulation 11 (Fig.3) and a lesser plurality of uninsulated conductive elements 1' (Fig.3), and further having a principle solid insulation 7 (Fig.3), i.e., a "solid insulation system including...a solid insulation" as claimed by applicant.

Schuler differs in that the generator is not disclosed as being coupled to at least one of a gas and steam turbine.

Applicant's prior art figure 3 (discussed on p.14, lines 9-33 of the specification) substantially discloses a turbo-generator plant with generator 100, turbine 102 and shaft 101, with the generator driven by a gas from a combustion chamber 103. Gas-driven generators are desirable to achieve high-temperature thermal-to-kinetic energy transformation (specification p.1, lines 15-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have driven Schuler's generator by means of a gas turbine since gas turbines were desirable to provide thermal-to-kinetic energy transformation.

In regard to forming the semiconducting layer with the same coefficient of thermal expansion as that of the insulation layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed these layers with similar coefficients since it was known in the art that the expansion rate of the two layers would be the

Art Unit: 2834

same and this is desirable in order to prevent cracking of the insulation and wear between the two.

Regarding claims 2-3, a magnetic core 10 with laminated sheets are inherent in the generator of Schuler.

Regarding claim 4, insulation 11 surrounds one or more of solid conductors 1 in Schuler (Fig.1).

Regarding claims 18-19, earthing of generators is inherent to Schuler.

Regarding claim 20, Schuler's hollow conductors 2 inherently provide gas cooling of the stator windings.

Regarding claim 21, specific ranges have been held to involve ordinary skill. In re Aller, 105 USPQ 233 (CCPA 1955).

Regarding claims 24-27, the features are inherent in Schuler's rotating electrical machine.

Regarding claim 28, this mode of operation greater than 36 kV is inherent to Schuler's generator.

7. Claims 5-8, 11, 33-38 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuler and applicant's admitted prior art, and further in view of Elton et al. (US 4,853,565). Schuler, in particular, does not teach inner and outer semi-conducting layers forming an equipotential surface surrounding the conductor and solid insulation.

Elton teaches a generator (abstract, lines 8-9) including a winding/cable (Figs.1&7) comprising an outer/external semi-conducting layer 18 surrounding insulation 16 to provide equalization of potential and prohibit development of corona discharge (abstract). The

Art Unit: 2834

embodiment of Fig.6 teaches inner semi-conducting layer 79 in electrical contact with strands 76, while the embodiment of Fig.7 shows both inner and outer semi-conductive layers 104 and 110 surrounding strands 102.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have driven Schuler's generator by means of a gas turbine since gas turbines were desirable to provide thermal-to-kinetic energy transformation, and further to provide an outer semi-conducting layer as taught by Elton et al. in the generator since such a modification according to Elton et al. would have been desirable to provide a conductor which prohibits the development of corona discharge (abstract, c.1, lines 6-11).

Regarding claims 7-8, the layer 18 in Elton is in electrical contact with ground potential to bleed off electric charge to prevent corona discharge (c.4, lines 38-46).

Regarding claims 41-43, these features are inherent in the combination of Schuler, admitted prior art and Elton.

8. Claims 13-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schuler and applicant's disclosed prior art as applied to claim 1, further in view Lauw (US 4,982,147). Schuler in combination with applicant's prior art figure 3 disclose the claimed invention except for a teaching of having or not having a step-up transformer in the system device.

Lauw in column 6, lines 50-52 teach that use of transformers to step-up or step down the voltage are contingent upon the requirements of the application. In the present application, having a voltage higher than 30kV-36kV, it would have been an obvious matter of design choice to one having ordinary skill in the art to utilize a step-up transformer in order to increase and meet the required voltage in the application.

Art Unit: 2834

9. Claims 22-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schuler and applicant's disclosed prior art as applied to claim 1, further in view of Willyoung (US 5,654,602). Neither Schuler nor applicant's disclosed prior art teaches fractional slot windings.

Willyoung teaches a large nuclear or fossil fuel generator including fractional windings to provide improved winding patterns with low electrical unbalance (c.2, lines 45-54 & c.4, lines 35-57).

It would have been obvious to modify Schuler and applicant's disclosed prior art and provide fractional windings per Willyoung to provide improved winding patterns with low electrical unbalance.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-2, 4-6, 28-29, 33-36 and 44 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32 and

Art Unit: 2834

34 of copending Application No. 10/603,802 in view of applicant's admitted prior art. Claim 32 of the '802 application recites a flexible, high-voltage electrical machine cable with inner and outer semi-conducting layers. Such a machine inherently produces active and reactive power. The claim does not recite a gas or steam turbine driving the machine shaft.

Applicant's prior art figure 3 (discussed on p.14, lines 9-33 of the specification) substantially discloses a turbo-generator plant with generator 100, turbine 102 and shaft 101, with the generator driven by a gas from a combustion chamber 103. Gas-driven generators are desirable to achieve high-temperature thermal-to-kinetic energy transformation (specification p.1, lines 15-30).

It would have been obvious to provide the machine of claim 32 of the '802 application with a gas-driven turbine per applicant's admitted prior art since this would have been desirable to achieve thermal-to-kinetic energy transformation.

This is a provisional obviousness-type double patenting rejection.

Regarding claim 2, this is inherent in claim 32 of the '802 application.

Regarding claim 4, refer to claim 32 of the '802 application.

Regarding claim 5, this is inherent in claim 32 of the '802 application.

Regarding claims 6 and 34, refer to claim 34 of the '802 application.

Regarding claims 31-32, although the '802 application does not claim the specific location and method for building, these would have been obvious matters of engineering design.

Regarding claims 35-36 and 44, refer to claim 32 of the '802 application.

Allowable Subject Matter

12. Claims 9 and 16-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Note that claim 17 has been treated as depending from claim 16 rather than claim 15. Claims 39-40 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Further, these claims are allowed provided a terminal disclaimer is filed to overcome the double-patenting rejection.

Regarding claims 9 and 39-40, the prior art does not teach that at least one of the semi-conducting layers has substantially the same coefficient of thermal expansion as the solid insulation.

Regarding claim 16, the prior art does not teach connection of the generator to more than one voltage level.

Regarding claim 44, Schuler teaches a bar-winding for electrical machines composed of twisted, insulated conductors 1 and uninsulated hollow conductors 2 (c.3, lines 55-56; Fig.1). However, Schuler's bar-winding is not flexible, since during manufacture a strip of mica-resin putty 4 is placed along the bar in a partially-hardened condition (B-condition) and then pressed for several minutes at 180 degrees C and then allowed to harden (c.4, lines 28-36). Therefore, the prior art does not teach the claimed flexible cable.

13. Claims 29 and 31-32 are allowed provided a terminal disclaimer is filed to overcome the double-patenting rejection. The prior art does not teach that at least one of the semi-

Art Unit: 2834

conducting layers forms a monolithic structure with the solid insulation having substantially the same coefficient of thermal expansion.

Response to Arguments

14. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Burton S. Mullins

BURTON S. MULLINS
PRIMARY EXAMINER